



Workshop on Equipment Failure: Analysis and Prevention Management

June 3 – 7, 2024, 1st Run: Lagos & Abuja

December 2 – 6, 2024, 2nd Run: Lagos & Port Harcourt

For Tutor -Led Class: 9am – 4:30pm

Workshop fee: N300, 000 per Participant

For online: Delivery via Zoom

Time: 9am – 4:00pm everyday

Online course fee: N250, 000 per Participant

Available for In-plant Training

**600 U\$D for foreign
Participants**

Program Overview:

The prevention of potential damage to machinery and equipment is necessary for a safe and reliable operating plant. This course will provide participants with International Standards Organization (ISO) references, Operational Excellence Standards and best practices used in failure analysis and prevention. Failure analysis is a critical aspect of product development, as well as of component and system improvements. Every product or process has modes of failure which can be analyzed using tools such as Failure Modes & Effects Analysis (FMEA), Failure Modes, Effects & Criticality Analysis (FMECA), Event Tree Analysis (ETA), Fault Tree Analysis (FTA), and Risk Based Maintenance (RBM). Participants will learn techniques, tools and the procedures of root cause failure analysis and failure mode effective analysis as a proactive strategy for achieving precise operation and improving machinery performance. This course offers an insight into how to analyze a system's failure modes and define how to prevent or find those failures early.

For Whom:

This course is designed for Technical Authorities (TAs), Reliability Engineers, Production/Operation Engineers, Maintenance Engineers, Design Engineers, Planning Engineers, as well as other maintenance personnel and anyone who would gain from understanding how the failure analysis and prevention function interacts within their roles and responsibilities.

Learning Objectives:

At the end of the program, participants will be able to:

- implement the latest best practices in failure analysis;
- explain how criticality assignment and prioritization assists maintenance of machinery;
- identify equipment criticality and functional failure;
- utilize Risk Based Maintenance (RBM), Root Cause Analysis (RCA), and Fault Tree Analysis tools manage equipment failures; and
- explain equipment life cycle cost analysis and evaluation.

Course Outline:

Day 1: Introduction to Failure Analysis

- Failure Analysis and troubleshooting as a tool for machinery reliability
- Causes of Machinery Failure
- Machinery Design Properties

- Equipment Failure
- Types of Failure Causes
- Effect of Failure
- Failure Cascading, Modes and Reduction Programs
- Life Cycle Cost Evaluation

Day 2: Reliability Centered Maintenance (RCM) and Root Cause Failure Analysis (RCFA)

Process

- What is RCM?
- What is RCFA? Why is it done?
- Types of Root Causes
- Challenges in Setting up RCFA
- Sustaining an RCFA Process
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Day 3: Failure Analysis Methods and Techniques

- Fishbone Diagrams, Pareto Charts, Fault Tree Analysis and Events Tree Analysis
- Failure Mode and Effect Analysis (FMEA)
- Failure Analysis Methods and Techniques
- Implementing FMEA and FMEA Procedure

Day 4: Risk Management and Failure Analysis

- Predictive Maintenance and Condition Monitoring
- Machine Failure Modes
- Equipment Performance
- Methods of Detection
- Machine Failure
- Structured Problem-Solving Techniques
- Risk Management
- Hazard and Operability (HAZOP)
- HAZID (Hazard Identification)

DAY 5 – Machine Reliability & Maintainability

- Reliability, availability, maintainability
- Risk Assessment and Management
- Life Cycle Management
- Reliability & Maintainability
- Techniques & Analysis of Reliability
- Human and System Reliability
- Human Performance Approach
- Reliability Centered Maintenance
- Auditing & Review Machinery Reliability

Training Methodology

Lectures, discussions, exercises, case studies, audio-visual aids will be used to reinforce these teaching/learning methods.

LOCATIONS

1 - HCA Learning Centre. Acme House 2nd Floor, 23, Acme Road, Ogba, Industrial Scheme, Ikeja, Lagos, Nigeria

2 - Green-Minds Hotel, Plot 764, Cadastral Zone B05, E. Ekukinam Street, Utako District, Abuja

3 – Pakiri hotel Ltd., 4 Okwuruola Street, off Stadium Road, Rumuola, Port Harcourt, Rivers State.

Open Course Fee: N300, 000
In-plant Fee Negotiable

WORKSHOP FEE:

N300, 000 per participant, VAT –N22, 500

Note: this covers Workshop Fee, Tea/coffee break, Lunch, course materials and certificate of attendance.

Payment should be made into our Accounts:

Account Name: Human Capital Associates Global Consult Ltd.

Union Bank of Nig. PLC: Account No: 0097961537

First Bank of Nig. PLC: Account No: 2033683960

Keystone Bank Ltd.: Account No: 1007150325

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